

**WHAT IS CLAIMED IS:**

1. A method for crystallizing amorphous silicon, the method comprising:  
preparing a substrate on which an amorphous silicon layer is formed;  
aligning a mask above the substrate, the mask being divided into first and second blocks, the first block having a plurality of first transmission slits and a plurality of interception portions formed between the first transmission slits, the second block having a plurality of second transmission slits alternately arranged with the first transmission slits and a plurality of third transmission slits formed corresponding to middle portions of the first transmission slits;

forming first crystalline regions on the amorphous silicon layer by irradiating a laser beam through the first transmission slits, each of the first crystalline regions having a crystallized region and a nucleation region; and

crystallizing non-crystalline regions between the first crystalline regions and re-crystallizing the nucleation regions by moving either or both of the substrate and the mask by a distance and by irradiating a laser beam through the second and third transmission slits.

2. The method according to claim 1, wherein the substrate is displaced by a stage on which the substrate is disposed, and a stroke of displacement of the stage is half a length of the mask.

3. The method according to claim 1, wherein a width of the first transmission slits in the first block is greater than twice as long as a maximum length of a grain grown without forming the nucleation regions on the amorphous silicon layer by irradiating the laser beam.

4. The method according to claim 1, wherein a width of the first transmission slits in the first block is greater than twice as long as a maximum length of a grain grown on the amorphous silicon layer by irradiating the laser beam.

5. The method according to claim 1, wherein a width of the third transmission slits in the second block is greater than that of the nucleation region of the first crystalline region.

6. The method according to claim 1, wherein a width of the second transmission slits

in the second block is greater than that of the non-crystalline region corresponding to the interception portion between the first transmission slits.

7. The method according to claim 1, wherein a width of the first transmission slits is greater than the interception portion formed between the first transmission slits.

8. The method according to claim 1, wherein a width of the first transmission slits is greater than that of the second transmission slits, and the width of the second transmission slits is greater than that of the third transmission slits.

9. The method according to claim 1, wherein an entire surface of the mask receives uniform energy of the laser beam.

10. The method according to claim 1, wherein in the step of moving either or both of the substrate and the mask, the second block is located at the previous location of the first block.

11. A mask used for crystallizing an amorphous layer into a poly-crystal layer using a sequential lateral solidification technique, the mask comprising:

first and second blocks patterned side by side, the first and second blocks having an identical size to each other,

wherein the first block comprises a plurality of first transmission slits and a plurality of interception portions formed between the first transmission slits; and

the second block comprises a plurality of second transmission slits alternately arranged with the first transmission slits and a plurality of third transmission slits formed corresponding to middle portions of the first transmission slits.

12. The mask according to claim 11, wherein a width of the first transmission slits is greater than twice as long as a maximum length of a grain grown without forming the nucleation regions on the amorphous silicon layer by irradiating the laser beam.

13. The mask according to claim 11, wherein a width of the first transmission slits in the first block is greater than twice as long as a maximum length of a grain grown on the

amorphous silicon layer by irradiating the laser beam.

14. The mask according to claim 11, wherein a width of the third transmission slits is greater than that of the nucleation region formed in a crystalline region on which the laser beam is irradiated through the first transmission slits.

15. The mask according to claim 11, wherein a width of the second transmission slits is greater than that of the non-crystalline region corresponding to the interception portion between the first transmission slits.

16. The mask according to claim 11, wherein a width of the first transmission slits is greater than the interception portion formed between the first transmission slits.

17. The mask according to claim 11, wherein a width of the first transmission slits is greater than that of the second transmission slits, and the width of the second transmission slits is greater than that of the third transmission slits.

18. A thin film transistor comprising a poly-crystal silicon layer formed through a method for crystallizing amorphous silicon, the method comprising:

aligning a mask above a substrate on which an amorphous silicon layer is formed, the mask being divided into first and second blocks, the first block having a plurality of first transmission slits and a plurality of interception portions formed between the first transmission slits, the second block having a plurality of second transmission slits alternately arranged with the first transmission slits and a plurality of third transmission slits formed corresponding to middle portions of the first transmission slits;

forming first crystalline regions on the amorphous silicon layer by irradiating a laser beam through the first transmission slits, each of the first crystalline regions having a crystallized region and a nucleation region; and

crystallizing non-crystalline regions between the first crystalline regions and re-crystallizing the nucleation regions by moving either or both of the substrate and the mask by a distance and by irradiating a laser beam through the second and third transmission slits.

19. The thin film transistor according to claim 18, wherein a width of the first

transmission slits in the first block is greater than twice as long as a maximum length of a grain grown without forming the nucleation regions on the amorphous silicon layer by irradiating the laser beam.

20. The thin film transistor according to claim 18, wherein a width of the first transmission slits in the first block is greater than twice as long as a maximum length of a grain grown on the amorphous silicon layer by irradiating the laser beam.

21. The thin film transistor according to claim 18, wherein a width of the third transmission slits in the second block is greater than that of the nucleation region of the first crystalline region.

22. The thin film transistor according to claim 18, wherein a width of the second transmission slits in the second block is greater than that of the non-crystalline region corresponding to the interception portion between the first transmission slits.

23. The thin film transistor according to claim 18, wherein a width of the first transmission slits is greater than the interception portion formed between the first transmission slits.

24. The thin film transistor according to claim 18, wherein a width of the first transmission slits is greater than that of the second transmission slits, and the width of the second transmission slits is greater than that of the third transmission slits.

25. A method for making a poly-crystal layer, the method comprising:  
forming first crystalline regions on the amorphous layer by irradiating a laser beam through a plurality of first transmission slits, each of the first crystalline regions having a crystallized region and a nucleation region;  
crystallizing non-crystalline regions between the first crystalline regions by irradiating the laser beam through a plurality of second transmission slits; and  
re-crystallizing the nucleation regions formed in the first crystalline regions by irradiating the laser beam through a plurality of third transmission slits.

26. The method according to claim 25, wherein a width of the first transmission slits is greater than twice as long as a maximum length of a grain grown without forming the nucleation regions on the amorphous layer by irradiating the laser beam.

27. The method according to claim 25, wherein a width of the first transmission slits is greater than twice as long as a maximum length of a grain grown on the amorphous layer by irradiating the laser beam.

28. The method according to claim 25, wherein a width of the second transmission slits is greater than that of the non-crystalline region between the first crystalline regions, but is limited to an extent where the grain can be grown without forming the nucleation regions in the amorphous layer by irradiating the laser beam.

29. The method according to claim 25, wherein a width of the third transmission slits is greater than that of the nucleation region of the first crystalline region, but is limited to an extent where the grain can be grown without forming the nucleation regions in the amorphous layer by irradiating the laser beam.